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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/521,660	01/18/2005	Alphons Antonius Maria Lambertus Bruekers	NL 020722	2189

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EXAMINER

ALLISON, ANDRAE S

ART UNIT	PAPER NUMBER
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2624

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01/30/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/521,660	Applicant(s) BRUEKERS ET AL.	
	Examiner Andrae S. Allison	Art Unit 2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 January 2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on January 1, 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>01/18/2005; 03/21/2006</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 101

1. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

The USPTO "Interim Guidelines for Examination of Patent Applications for Patent Subject Matter Eligibility" (Official Gazette notice of 22 November 2005), Annex IV, reads as follows:

Descriptive material can be characterized as either "functional descriptive material" or "nonfunctional descriptive material." In this context, "functional descriptive material" consists of data structures and computer programs which impart functionality when employed as a computer component. (The definition of "data structure" is "a physical or logical relationship among data elements, designed to support specific data manipulation functions." The New IEEE Standard Dictionary of Electrical and Electronics Terms 308 (5th ed. 1993).) "Nonfunctional descriptive material" includes but is not limited to music, literary works and a compilation or mere arrangement of data.

When functional descriptive material is recorded on some computer-readable medium it becomes structurally and functionally interrelated to the medium and will be statutory in most cases since use of technology permits the function of the descriptive material to be realized. Compare *In re Lowry*, 32 F.3d 1579, 1583-84, 32 USPQ2d 1031, 1035 (Fed. Cir. 1994) (claim to data structure stored on a computer readable medium that increases computer efficiency held statutory) and *Warmerdam*, 33 F.3d at 1360-61, 31 USPQ2d at 1759 (claim to computer having a specific data structure stored in memory held statutory product-by-process claim) with *Warmerdam*, 33 F.3d at 1361, 31 USPQ2d at 1760 (claim to a data structure per se held nonstatutory).

In contrast, a claimed computer-readable medium encoded with a computer program is a computer element which defines structural and functional interrelationships between the computer program and the rest of the computer which permit the computer program's functionality to be realized, and is thus statutory. See *Lowry*, 32 F.3d at 1583-84, 32 USPQ2d at 1035.

Claim 9 is rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter as follows. Claim 9 define software embodying functional descriptive material. However, the claim does not define a computer-readable medium or memory and is thus non-statutory for that reason (i.e., "When functional descriptive material is recorded on some computer-readable medium it

becomes structurally and functionally interrelated to the medium and will be statutory in most cases since use of technology permits the function of the descriptive material to be realized" – Guidelines Annex IV). That is, the scope of the presently claimed software can range from paper on which the program is written, to a program simply contemplated and memorized by a person. The examiner suggests amending the claims to embody the program on "computer-readable medium" or equivalent in order to make the claim statutory. Any amendment to the claim should be commensurate with its corresponding disclosure.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-2 and 8-9 are rejected under 35 U.S.C. 102(b) as being anticipated by Cvejic et al (NPL document titled: "Improving audio watermarking scheme using psychoacoustic watermark filtering").

As to independent claim 1, Cvejic discloses a method of detecting a watermark in a signal (watermark extraction, page 3, section 3), the method comprising the steps of computing a correlation between a sequence of signal samples and a predetermined

watermark (cross-correlation between a watermark sequence and an equalized m-sequence, see page 3, section 3, [p][001], lines 5-8), and detecting whether said correlation exceeds a given threshold (see equation on page 3, section 3 and peak information see Fig 3), characterized in that the method includes pre-processing of said sequence of signal samples (see page 3, section 3, [p][001-002]), said pre-processing comprising the steps of: dividing the sequence of signal samples into sub-sequences (segment watermarked signal into blocks, see page 3, section 3, [p][001], lines 12-15); subjecting all signal samples of a sub-sequence to the same weighting, and varying said weighting from sub-sequence to sub-sequence to obtain a substantially flat distribution of signal samples over the sequence (note that equalization is performed on the m-sequence in order to match the incoming watermark samples, see page 3, section 3, [p][002] and page 4, [p][001]); and concatenating the weighted sub-sequences to obtain the pre-processed sequence of signal samples (integrate the blocks, see page 4, section 3, lines 35-39).

As to claim 2, Cvejic teaches the method, further including the step of accumulating a plurality of sequences of signal samples prior to correlation, characterized in that said pre-processing is applied to said accumulated sequences (see page 4, section 3, [p][002], lines 41-46).

As to independent claim 8, this claim differs from claim 1 only in that claim 8 is an arrangement whereas, claim 1 is method and the limitation computing means,

thresholding means pre-processing means dividing means weighting means and concatenating means are additively recited. Cvejic discloses an algorithm (see Fig 3) comprising computing means (correlation calculation), thresholding means (peak information), pre-processing means (equalization filter), dividing means (equalization filter) weighting means (equalization filter) and concatenating means (integration).

As to claim 9, Cvejic teaches a computer program product (watermarking algorithm, see page 1, [p][003], lines 1-2) arranged to cause a computer () executing said computer program to carry out the method as claimed in claim 1.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 3-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cvejic et al (NPL document titled: "Improving audio watermarking scheme using psychoacoustic watermark filtering") in view of Tachibana et al (Pub No.: US 2002/0061118).

As to claim 3, Cvejic does not expressly disclose the method wherein said step of dividing the sequence of signal samples into sub-sequences comprises dividing into overlapping sub-sequences. Tachibana discloses an electronic watermarking method

(see [p][0001], lines 1-3) that includes the step of dividing the sequence of signal samples into sub-sequences comprises dividing into overlapping sub-sequences (see [p][0102], lines 3-6). At the time of the invention, it would have been obvious to a person of ordinary skill in the art to modified the watermark extraction method of Cvejic with the electronic watermarking method of Tachibana to protect an embedding algorithm and preventing it from easily analyzed ([p][0006]) by superimposing overlapped frames to generate a new frame wherein additive information is embedded ([p][0030], lines 23-26).

As to claim 4, note the discussion above, Tachibana teaches the method, wherein said overlap is 50% (see [p][0102], lines 3-6, where frames are overlapped by 1/2).

As to claim 5, note the discussion above, Tachibana teaches the method, wherein said step of dividing into overlapping sub-sequences includes applying a window function to said overlapping sub-sequences (see [p][0106], lines 1-2, where a sine window function is used).

As to claim 6, note the discussion above, Tachibana teaches the method, wherein said step of weighting comprises Fourier transforming the sub-sequence of signal samples, normalizing the magnitudes of the Fourier coefficients, and back-

transforming the normalized coefficients (see Fig 1, step 130 and 150)).

6. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Cvejic et al (NPL document titled: "Improving audio watermarking scheme using psychoacoustic watermark filtering") in view of Hosaka et al (US Patent No.: 6,731,774)

As to claim 7, Cvejic does not expressly disclose the method, wherein said step of weighting comprises dividing all signal samples of a sub-sequence by the largest signal sample of said sub-sequence. Hosaka discloses an electronic watermarking method which includes the step of dividing all signal samples of a sub-sequence by the largest signal sample of said sub-sequence (see column 8, lines 13-19). At the time of the invention, it would have been obvious to a person of ordinary skill in the art to have combined the teaching of Cvejic and Hosaka to determine if a signal contains a watermark (see column 8, lines 13-26) or not by dividing by the largest by the sub-sequence.

Conclusion

The prior art made part of the record and not relied upon is considered pertinent to applicant's disclosure.

Kim (US Patent No.: 7,167,574) is cited to teach a method and apparatus for content-based image copy detection.

Kalker (US Patent No.: 7,191,334) is cited to teach a method for embedding auxiliary data in a signal.

Kalker (US Patent No.: 7,123,743) is cited to teach a method and arrangement for detecting a watermark in an information signal.

Nakamura et al (US Patent No.: 6,185,312) is cited to teach a method for embedding and reading watermark-information in digital form.

Kalker et al (NPL titled: Analysis of Watermark Detection using SPOMF) is cited to teach a method for deriving an analytical relationship between the energy of the embedded watermark and the reliability of detection.

Kang et al (NPL titled: Reliable watermark detection method based on analysis of correlation) is cited to teach we propose a novel watermarking scheme

Inquires

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrae S. Allison whose telephone number is (571) 270-1052. The examiner can normally be reached on Monday-Friday, 8:00 am - 5:00 pm, EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bhavesh Meta can be reached on (571) 272-7453. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Application/Control Number:
10/521,660
Art Unit: 2624

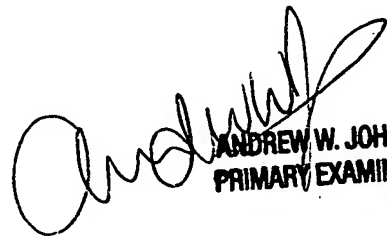
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Andrae Allison

January 27, 2008

A.A.


ANDREW W. JOHNS
PRIMARY EXAMINER